Introduction

• Predictors of later language in children with intellectual disabilities (ID)
  • prelinguistic behaviors
    • prelinguistic communicative intentions
      • comments (Yoder 98; McCathren 99a)
      • requests (Mundy 95)
    • types of prelinguistic communication
      • vocalizations (McCaithren 99a,b)
      • pointing (Brady 04)
  • cognitive skills
    • no longitudinal relationship (Yoder 98; McCathren 99a,b)
  • language comprehension
    • no longitudinal relationship (McCaithren 99)

Most studies in children with ID

• use test-retest designs
  ➔ minimal information about language growth curve
• only take into account spoken modality
  ➔ disregard the use of manual signs

Objectives

• to describe expressive vocabulary acquisition in children with ID
• to search for predictors of expressive vocabulary acquisition
  ➔ using a longitudinal multi-wave design
  ➔ accounting for speech and manual signs

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Participants

- 36 children with ID
  - 24 girls and 12 boys
  - chronological age between 3:00 – 6:05 years ($M = 4.02$)
  - mental age between 0:08 – 4:01 years ($M = 2.03$)
  - no severe visual, motor and/or auditory problems
  - residing at home in a monolingual Dutch environment
  - enrolled in school-based SLT, with simultaneous sign-and-speech input
  - diagnosis of autism during the course of the study ($n = 5$)
  - different etiologies
    - Down syndrome ($n = 9$)
    - other known syndrome (e.g., Dravet, Fragile X syndrome) ($n = 10$)
    - etiology unknown ($n = 17$)

Procedure

- Outcome variable – expressive vocabulary
  - 2-year longitudinal follow-up with assessments every 4 months
  - CDI/Words and Gestures, Dutch version (Zink & Lejaegere, 2002)
  - vocabulary checklist, modified to include use of manual signs
  - overall, 75% of the questionnaires were completed

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<th>4. Toys (21)</th>
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<th>sign alone</th>
<th>sign + speech</th>
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Potential predictors

- rate of requesting and commenting
- pre- and early linguistic behaviors used to request and comment
- cognitive skills
- vocabulary comprehension
- chronological age
Data analysis

- **Individual growth modeling** (Singer & Willett, 2003)
  - Hierarchical linear modeling (Raudenbush & Bryk, 2002)
  - Linear mixed modeling (Verbeke & Molenberghs, 2000)
- To analyze longitudinal data at two levels
  - Level 1 (within-person) – individual growth over time
  - Level 2 (between-person) – differences in growth between individuals
- SAS PROC MIXED, full maximum likelihood estimation, under the assumption of unstructured covariance, with Kenward-Roger's DF

Results – Level 1

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<td>Level 1 model</td>
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<tr>
<td>Intercept</td>
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<tr>
<td>Time</td>
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<tr>
<td>Time²</td>
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*** p < .001

What is the effect of potential predictors on these growth parameters?
Predictors of longitudinal vocabulary acquisition in children with intellectual disabilities

Significant individual predictors
- proportion bimodal comments
- proportion points
- proportion words
- rate of different symbols
- cognitive skills
- vocabulary comprehension

Model combining all significant individual predictors
- age
- proportion bimodal comments
- proportion points
- proportion words
- rate of different symbols
- cognitive skills
- vocabulary comprehension

Conclusions
- Predictors of initial expressive vocabulary
  - vocabulary comprehension
    - larger receptive vocabulary ~ larger productive vocabulary

- Predictors of expressive vocabulary growth
  - rate of requests and comments
  - because participants beyond prelinguistic stage at baseline
  - predictive value disappears in more advanced stages
  - bimodal comments
    - acts that elicit language facilitating responses from adults
  - cognitive skills
    - vocabulary acquisition requires at least some cognitive skills

References
Predictors of longitudinal vocabulary acquisition in children with intellectual disabilities

Thank you for your attention!

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... Lions Club Hertog Jan Kortenberg

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